Policies for Infiltration System Approval

Comm 85, Soil and Site Evaluations Code, must be followed in designing stormwater infiltration systems. (There are some parts of Comm 85 that don't apply to stormwater systems, such as the sanitary permit. If you have questions, contact one of the S&B plumbing plan reviewers.)

There are not specific infiltration system design standards in Comm 85. Following are some guidlines that S&B will be using in plan review.

-DNR has a Soil and Site Evaluation Standard that includes detail concerning specifics for storm systems.

-A stipulation of approval will be that no substances may be discharged into the infiltration system that would cause exceedence of the groundwater standards.

-Load rates should be based on Table 82.365-2. Stormwater discharged to a subsurface infiltration system must comply with Table 82.70. TSS must be treated to $\leq$ 60 mg/L. Table 82.70 also contains a limitation for grease and oil of $\leq$ 15 mg/L.

-Vertical setbacks to zones of seasonal soil saturation are 5 feet of soil with 10 percent fines, 3 feet of soil with 20% fines, and a one-foot separation of material finer than coarse sand for rooftop runoff (or water with equivalent contaminant concentration).

-The design must also take hydraulic restrictions into account, even though there is no setback for quality, regardless of the source. Groundwater mounding must be taken into account when designing an infiltration system. More information on calculating groundwater mounding is available from the plumbing plan reviewers.

-Drain down time should be less than 72 hours.

-The horizontal separation distances in NR 811 and 812 must be adhered to. There must be a 100-foot separation from private wells and a 400-foot separation from public wells.

-Following is the hydraulic application information from the proposed code. This will be followed until the code becomes effective.

(c) *Hydraulic application rates.* The maximum hydraulic application rate for stormwater and clearwater subsurface infiltration plumbing systems shall be in accordance with one of the following methods.

1. The maximum hydraulic application rate shall be determined by soil analysis in accordance with sub. (2)(b) and Table 82.365-2.

2. The maximum hydraulic application rate shall be determined by field measurement using a nationally-accepted method and the correction factor as determined using Table 82.365-3. To determine the maximum hydraulic application rate, the measured infiltration rate at the infiltrative surface shall be divided by the correction factor as listed in Table 82.365-3.

Table 82.365-2

DESIGN INFILTRATION RATES FOR SOIL TEXTURES RECEIVING STORMWATER

Soil Texture [a]	Design Infiltration Rate Without Measurement inches/hour [b]
Coarse sand or coarser	3.60
Loamy coarse sand	3.60
Sand	3.60
Loamy sand	1.63
Sandy loam	0.50
Loam	0.24
Silt loam	0.13
Sandy clay loam	0.11
Clay loam	0.03
Silty Clay loam	0.04 [c]
Sandy clay	0.04
Silty clay	0.07
Clay	0.07

[a] Use sandy loam design infiltration rates for fine sand, loamy fine sand, very fine sand, and loamy fine sand soil textures.

[b] Infiltration rates represent the lowest value for each textural class presented; based on Rawls et al., 1998 [Use of Soil Texture, Bulk Density and Slope of Water Retention Curve to Predict Saturated Hydraulic Conductivity, ASAE, Vol. 41(2), pp. 983-988].

[c] Infiltration rate is an average, based on Rawls et al., 1982 (Estimation of Soil Water Properties, Transactions of the American Society of Agricultural Engineers Vol. 25, No. 5 pp. 1316 –1320 and 1328) and Clapp & Hornberger, 1978 (Empirical equations for some hydraulic properties. Water Resources Research 14:601-604).

Table 82.365-3
TOTAL CORRECTION FACTORS DIVIDED INTO MEASURED INFILTRATION RATES

Ratio of Design Infiltration Rates [a]	Correction Factor
1	2.5
1.1 to 4.0	3.5
4.1 to 8.0	4.5
8.1 to 16.0	6.5
16.1 or greater	8.5

[a] Ratio is determined by dividing the design infiltration rate from Table 82.365-2 for the textural classification at the bottom of the infiltration device by the design infiltration rate from Table 82.365-2 for the textural classification of the least permeable soil horizon. The least permeable soil horizon used for the ratio should be within five feet of the bottom of the device or to the depth of the limiting layer.

Parking lots and industrial stormwwater discharge requires pretreatment prior to infiltration.

DNR has requirements that they're notified of the installation of a class V injection well. Rich Roth of the DNR may be contacted at 608-266-2438 for the registration forms.